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RF

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/029,764 | 10/22/2001 | Wen-Kun Yang | 6033.P075 | 6437 |

23616 7590 10/14/2003
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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT PAPER NUMBER

2826

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

RF

Office Action Summary

Application No.

10/029,764

Applicant(s)

YANG ET AL.

Examiner

Alexander O Williams

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-- Th MAILING DATE of this communication appears on the cover she t with th correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Serial Number: 10/029764 Attorney's Docket #: 0106-05169US

Filing Date: 10/22/01;

Applicant: Yang et al.

Examiner: Alexander Williams

Time Restarted as of this action mailing.

Applicant's election of Group I (claims 13 to 19) in Paper # 9, filed 6/20/03, has been acknowledged.

This application contains claims 1 to 12 drawn to an invention non-elected without traverse in Paper No. 9.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

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Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The use of the trademark EPOXY and PI has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

The disclosure is objected to because of the following informalities: Divisional Patent Application information should be updated.

Appropriate correction is required.

Claims 14 to 17 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 14 to 17, it is unclear and confusing to what is meant by "PI" and "EPOXY". Are these trademarks?

Any of claims 14 to 17 not specifically addressed above are rejected as being dependent on one or more of the claims which have been specifically objected to above.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 13, 14 and 16 to 19, **insofar as claims 14, 16 and 17 can be understood**, are rejected under 35 U.S.C. § 102(b) as being anticipated by Akagawa et al. (U.S. Patent # 5,960,308).

13. Akagawa et al. (figures 1 to 32) specifically figure 1 show a wafer level package **30** comprising: a plurality of chips **32** on a wafer (**inherit**), said wafer has trench (**where 48 lies**) formed in said wafer and run through said wafer; material filled **48** in said trenches; metal pad **36** formed on the surface of said wafer; photo sensitive polymer material **38** formed on the surface of said wafer and expose said metal pad; a first conductive layer **40,41,43** formed within said photo sensitive polymer material; circuit diagram patterning formed on the top of said photo sensitive polymer material and said first conductive layer; a protection layer **42** covered on said circuit diagram, said photo sensitive polymer material and a portion of said circuit diagram exposed; and a conductive bump **46** formed on said exposed circuit diagram.

14. The wafer level package according to claim 13, Akagawa et al.'s photo sensitive polymer comprises EPOXY

16. The wafer level package according to claim 13, Akagawa et al.'s filling material comprises EPOXY.

17. The wafer level package according to claim 13, Akagawa et al.'s protection layer comprises EPOXY.

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18. The wafer level package according to claim 13, Akagawa et al.'s conductive pattern diagram comprises copper.

19. The wafer level package according to claim 13, Akagawa et al.'s conductive bump comprises solder.

Claims 13, 14 and 16 to 19, **insofar as claims 14, 16 and 17 they can be understood**, are rejected under 35 U.S.C. § 102(e) as being anticipated by Chakravorty (U.S. Patent # 6,181,569 B1).

13. Chakravorty (figures 3 to 9f) specifically figure 6 show a wafer level package comprising: a plurality of chips **301** on a wafer, said wafer has trench formed in said wafer and run through said wafer; material filled in said trenches (see figure 9a); metal pad **303** formed on the surface of said wafer; photo sensitive polymer **305** material formed on the surface of said wafer and expose said metal pad; a first conductive layer **307,310** formed within said photo sensitive polymer material; circuit diagram patterning formed on the top of said photo sensitive polymer material and said first conductive layer; a protection layer **308** covered on said circuit diagram, said photo sensitive polymer material and a portion of said circuit diagram exposed; and a conductive bump **311** formed on said exposed circuit diagram.

14. The wafer level package according to claim 13, Chakravorty's photo sensitive polymer comprises EPOXY

16. The wafer level package according to claim 13, Chakravorty's filling material comprises EPOXY.

17. The wafer level package according to claim 13, wherein said protection layer comprises EPOXY.

18. The wafer level package according to claim 13, Chakravorty's conductive pattern diagram comprises copper.

19. The wafer level package according to claim 13, Chakravorty's conductive bump comprises solder.

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Claim 15 , **insofar as it can be understood**, is rejected under 35 U.S.C. § 103(a) as being unpatentable over Akagawa et al. (U.S. Patent # 5,960,308) in view of Chakravorty (U.S. Patent # 6,181,569 B1).

Chakravorty show the features of the claimed invention as detailed above, but fail to explicitly show the said photo sensitive polymer comprises photo PI.

Ishida is cited for showing a polyimide multilayer wiring substrate. Specifically, Ishida (figure 1) discloses where photo sensitive polymer comprises photo PI for the purpose of preventing the occurrence of cracks and fractures in the polyimide resins.

Therefore, it would have been obvious to one of ordinary skill in the art to use Ishida's polymer to modify Chakravorty's polymer for the purpose of preventing the occurrence of cracks and fractures in the polyimide resins.

Claim 15 , **insofar as it can be understood**, is rejected under 35 U.S.C. § 103(a) as being unpatentable over Akagawa et al. (U.S. Patent # 5,960,308) in view of Ishida (U.S. Patent # 5,686,702).

Akagawa et al. show the features of the claimed invention as detailed above, but fail to explicitly show the said photo sensitive polymer comprises photo PI.

Ishida is cited for showing a polyimide multilayer wiring substrate. Specifically, Ishida (figure 1) discloses where photo sensitive polymer comprises photo PI for the purpose of preventing the occurrence of cracks and fractures in the polyimide resins.

Therefore, it would have been obvious to one of ordinary skill in the art to use Ishida's polymer to modify Akagawa et al.'s polymer for the purpose of preventing the occurrence of cracks and fractures in the polyimide resins.

The listed references are cited as of interest to this application, but not applied at this time.

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| Field of Search | Date |
|--|---------|
| U.S. Class and subclass: 257/686,685,723,777,620,618,787,737,738,778,772,734, 700,701,758,759 | 9/21/03 |
| Other Documentation: foreign patents and literature in 257/686,685,723,777,620,618,787,737,738,778,772,734, 700,701,758,759 | 9/21/03 |
| Electronic data base(s): U.S. Patents EAST | 9/21/03 |

Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to Technology Center 2800 via the Technology Center 2800 Fax center located in Crystal Plaza 4-5B15. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center 2800 Fax Center number is (703) 308-7722 or 24. Only Papers related to Technology Center 2800 APPLICATIONS SHOULD BE FAXED to the GROUP 2800 FAX CENTER.

Any inquiry concerning this communication or any earlier communication from the examiner should be directed to ***Examiner Alexander Williams*** whose telephone number is **(703) 308-4863**.

Any inquiry of a general nature or relating to the status of this application should be directed to the ***Technology Center 2800 receptionist*** whose telephone number is **(703) 308-0956**.

9/21/03



Primary Patent Examiner
Alexander O. Williams